REMARKS

Claims 1, 2, and 4-9 were presented, examined and stand rejected. In response to the Office Action, Claims 1, 8 and 9 are amended. Claim 3 was previously cancelled. Claims 1, 2, and 4-9 remain in the Application. Reconsideration of the pending claims is respectfully requested in view of the above amendment and the following remarks.

I. Claims Rejected Under 35 U.S.C. § 103(a)

Claims 1, 2 and 4-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,260,990 issued to Dejaco ("Dejaco") in view of U.S. Patent No. 6,208,958 to Cho, et al. ("Cho") and further in view of U.S. Patent No. 6,615,174 issued to Arslan, et al. ("Arslan") and further in view of U.S. Patent No. 5,371,853 issued to Kao, et al. ("Kao"). Applicants respectfully traverse the rejection.

In view of the rejection, Applicants amend independent Claims 1, 8 and 9 to incorporate all of the limitations of Claim 7 and additional features:

> the formant bandwidth converting means expands the bandwidth of the formant parameters by extrapolating input line spectral frequency (LSF) coefficients into new LSF coefficients that span the bandwidth of the output CELP format ...., and ....compresses the bandwidth of the formant parameters by truncating the input LSF coefficients from a bandwidth span of the output CELP format" and "the excitation signal is decimated from a sampling frequency of the input CELP format to a sampling rate of the output CELP format when the bandwidth of the input CELP format is wider than that of the output CELP format, the excitation signal is interpolated from the sampling frequency of the input CELP format to the sampling rate of the output CELP format when the bandwidth of the input CELP format is narrower than that of the output CELP format.

Support for the amendment can be found at paragraphs 62 and 83 of the application. Applicants submit that the cited references, separately or in combination, do not teach or suggest the amended limitations.

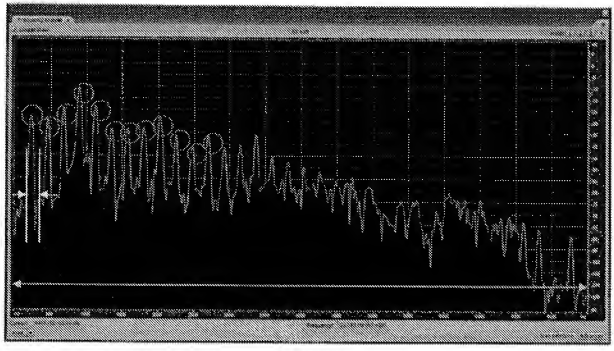
The Examiner recognizes that Dejaco does not disclose formant bandwidth conversion (page 10 of the Office Action). Further, Dejaco also does not disclose excitation bandwidth conversion recited in amended Claims 1, 8 and 9. Cho is relied on for disclosing formant bandwidth extension and Arslan is relied on for disclosing formant bandwidth reduction. However, Cho does not disclose any specific operation for performing the formant bandwidth

extension. Arslan discloses the use of a bandwidth adjustment ratio to adjust line spectrum pairs around the peak formant frequency locations (col. 9, lines 1-15). However, neither Cho nor Arslan discloses that the formant bandwidth can be expanded by extrapolating input LSF coefficients and compressed by truncating the input LSF coefficients. Other cited references do not supply this missing element.

Further, none of the cited references disclose the specific operation involved for performing the recited excitation bandwidth conversion. The Examiner indicates that Dejaco discloses an excitation parameter translator that is capable of translating excitation parameters (page 4 of the Office Action). However, Dejaco does not disclose decimation and interpolation of the excitation signal, as recited in amended Claims 1, 8 and 9. The Examiner indicates that Arslan discloses that excitation parameters can be transformed in the same manner as the formant parameters (page 15 of the Office Action). However, Arslan discloses the use of a bandwidth adjustment ratio to adjust the bandwidth. Arslan does not disclose the decimation and interpolation of the excitation signal, as recited in amended Claims 1, 8 and 9.

Additionally, Applicants submit that the formant bandwidth extension unit (210), as disclosed by Cho, for extending formant bandwidth does not correspond to the formant bandwidth converting means of the claimed invention.

Referring to the following figure, formant generally refers to a peak where energy is gathered in a speech spectral shown **in each circle** of the figure. In Cho, the formant bandwidth extension unit (210) performs a function for extending the width of each peak (i.e., the formant bandwidth shown **between the two vertical lines** at the left of the figure). By contrast, the formant bandwidth converting means of the claimed invention performs a function for converting the whole spectral envelope modeled as line spectral frequency (LSF) into new LSF coefficients (the recited output formant parameters) having a bandwidth narrow or broader than that of the whole spectral envelop. The recited formant bandwidth converting means expands or compresses the bandwidth of the formant parameters, which is different from the width of each individual peak. For 16 kHz sampling, the whole spectral envelope has a bandwidth of whole signals of 0~8 kHz as shown **in the horizontal line** at the bottom of the figure. Thus, the formant bandwidth extension unit (210) of Cho is different from the formant bandwidth converting means of the claimed invention with respect to function.



The Examiner also cites Kao for disclosing a perceptual weighted filter. However, Kao does not provide the amended elements of Claims 1, 8 and 9.

The cited references, separately or in combination, do not disclose formant bandwidth conversion performed by extrapolation and truncation, and excitation bandwidth conversion performed by decimation and interpolation, as recited in amended Claims 1, 8 and 9. Thus, amended Claims 1, 8 and 9, as well as their respective dependent claims, are non-obvious over the cited references.

For at least the foregoing reasons, Applicants submit that independent Claims 1, 8 and 9 and dependent Claims 2 and 4-7 are non-obvious over the cited references. Accordingly, withdrawal of the rejection of Claims 1, 2 and 4-9 is requested.

CONCLUSION

In view of the foregoing, it is believed that all claims are now in condition for allowance and such action is earnestly solicited at the earliest possible date. If there are any additional fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666.

Respectfully submitted,

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Dated: July 14, 2009

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I hereby certify that this correspondence is being submitted electronically via EFS Web on the date shown below.

Marilyn Bass July 14, 2009